

DETAILED DESCRIPTION OF THE INVENTION

In Fig 1, solar collector panel 1 consists of a frame having a bottom surface 3, folded primary end panels 4, 4', primary side panels 5, 5' and in the preferred embodiment, inwardly folded secondary side panel extensions 10, 10' (see Fig 6).

In Fig 1, parabolic supports 6 (~~see Figs 3, 5~~) (see Figs 3, 4) support reflector surface 7 (shown cutaway on the left side) and are held in slot cutouts 13 in the inside folded secondary side panels 10, 10'. Reflector surface 7 is bonded to an insulating substrate 17 (see Fig 3) and focuses solar rays to absorbing collector conduit 8.

In Fig. 1, surface 7 extends between the inside folded secondary side panels 10, 10' and substantially between folded primary end panels 4, 4'.

In Fig 2, the third slot 13 is shown without the support 6 to define its shape and length, noting that the upper slot end is above score / fold line L 4 and the bottom end is below score / fold line L7 to insure that ends of support 6 butt against surfaces of panels 10, 10'.

In Fig 3, absorber conduits 8 passes thru apertures 11 in the folded primary end panels. Vertical supports 6 with a parabolic shape 14 on the upper margin are held in slots 13 cut out from side projections 12 and support substrate 17 and superposed reflector surface 7.

In Fig. 4, cutaway supports 6 are shown without the substrate and reflector surface for clarity. Slots 13 are shown spaced from support 6 to illustrate cut out above upper fold line L4 and below lower line L7.

In practice slots 13 butt against support side surfaces without space.

In Fig 4, inside folded secondary side panel 10 is scored and folded to define projections 12 containing support containment slots 13 (see Figs 6,7).

In Fig 5, a corrugated paperboard rectangular blank is fabricated with scored fold lines L1- L1' for end panels 4, 4', scored fold lines L2-L2' for primary side panels 5 - 5', and L3 -L3' for folded secondary (extended) side panels 10, 10'.

In Fig 5, co-extended folded secondary panels 10.10' are shorter than inside panel length to avoid interference with end panel 'tabs' 15,15' which are folded inside at the corners. Leaving uncut space at the ends of panels 10.10', the first and last slots are therefore spaced from the inside of primary panel ends and the reflector substrate and surface are cantilivered between first and last supports and the respective end panels.

In enlarged Fig 6, the preferred arrangement shows the overfolded secondary panel 10. upper fold line L 4, top score / fold line L5 and L6 for projection 12, and lower fold line L7 to bring the bottom of panel 10 into surface contact with, and attachment to, primary side panel 5. Upper slot cut line 13 and lower cut line 13' (as described above) are shown phantom.

In another embodiment of Fig 7, a separate corrugated piece is scored and folded with projections 12 and attached to an intermediate separately processed corrugated piece (not referenced) to allow a different assembly procedure versus the overfolds of panel 10 {described} described above.

In Fig 8, collector panels 1 are arranged serially as an array with panels P1, P2, and P3. In this instance, connections 18 between adjacent conduits in a panel are external and in the example shown require 6 connectors between and at the ends of a 3 panel collector array.

In Fig 9, a typical framework 19 for an array is rotatably mounted at pivot 20 and includes means 21 to change the framework angle for seasonal change in the solar angle. Arranged as shown in 9, solar panels require 17 external connections for serial flow through the array.

In Fig 10, conduits having a length for three panels long are serially connected at ends 18 to an adjacent conduit for an adjacent parabolic reflector surface, with eight (8) connectors used to connect longer conduits at the ends and at the inlet and outlet versus the 17 connectors are used for an equivalent 9 panel array involving three arrays shown in Fig. 8.

~~(This)~~ These material savings and lower assembly requirements lower system costs for supplemental solar hot water heating.

It is understood that the present invention may be embodied in other specific forms without departing from the spirit or special attributes hereof, and it is, therefore, desired that the present embodiments be considered in all aspects as illustrative and therefore not restrictive, reference being made to the foregoing description to indicate the scope of the invention.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent are the following: